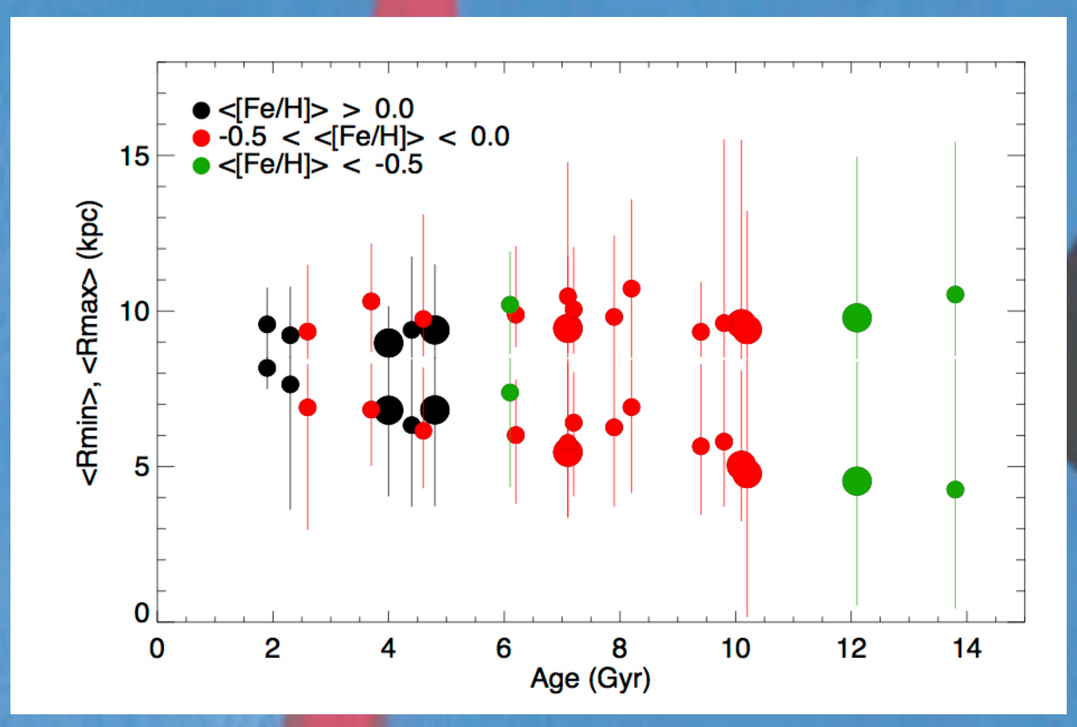
Exploring the orbits of the stars via *chemical tagging* techniques

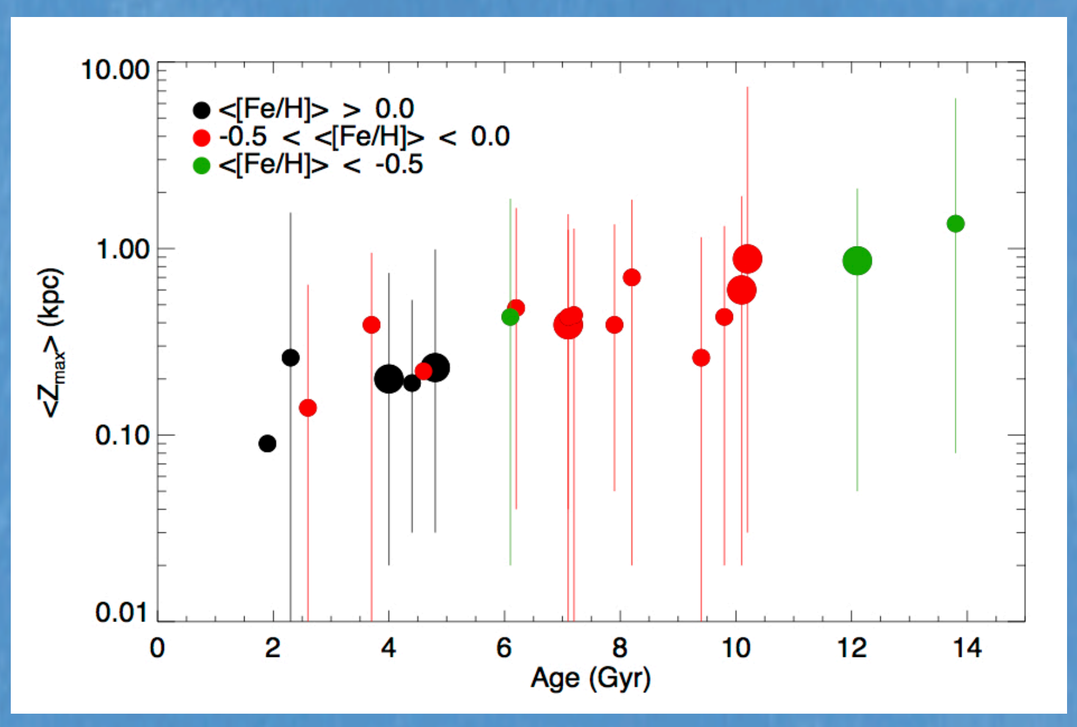
Borja Anguiano
Macquarie University, Sydney, Australia

Using the chemical groups identified by Mitschang et al. 2013 on a local sample of around 700 stars (Bensby et al. 2014) I report some properties on the orbital parameters (Rmin, Rmax, eccentricity, Zmax, angular momentum) and their temporal evolution. Very preliminary results show a significant variety of orbits for the members inside a chemical group, that may support the idea of the identification of co-eval groups (born same time, not necessarily same place) rather than co-natal (Anguiano et al. in prep.)

1) Peri- and apocentric parameters

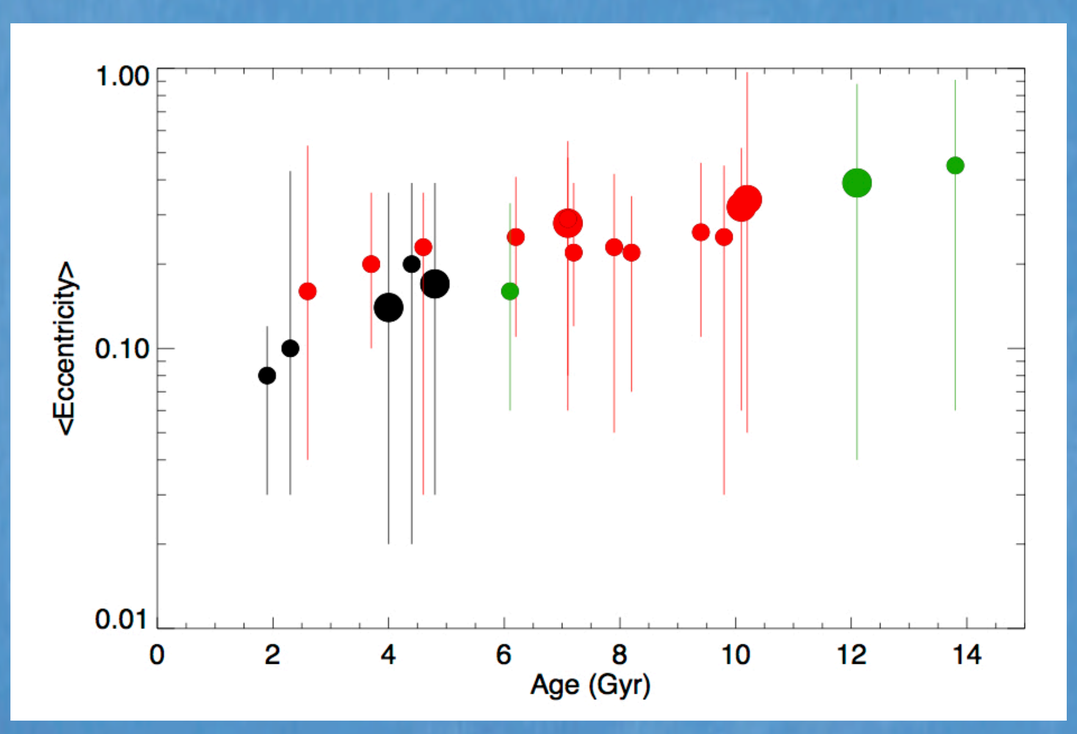


3) Zmax



The size of symbols represent relatives sizes of groups. The biggest dots are groups with more than 20 members and the smallest dots are groups with 10 to 20 members. The error bars are the maximum and minimum values of Rmin, Rmax, Eccentricity, Zmax, Jz respectively for a given group. In this preliminary study we find that the chemical groups show a rich variety of orbits, se graphics above and below.

2) Eccentricity



4) Lindbland diagram